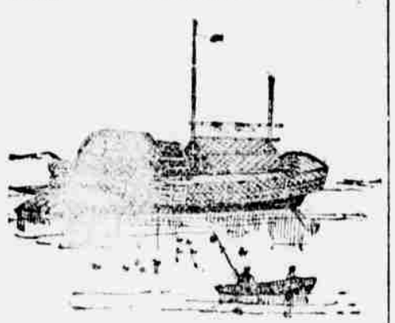
THE WORLD'S PROGRESS.

INVENTIONS AND SCIENTIFIC FACTS AT HOME AND ABROAD.

Photo... by the Lightning—Shall Man... like the Birds?—Professor Lan... Remarkable Invention. A C... k Boat.

Chi... ed that thousands of families li... on the water. They tie up to sh... ove from place to place as their ... ire. At Canton there are many ... ly boats. Chinese poultry raisers ... in great numbers. They remin... prehistoric remains in the Swiss ... show that the primitive man ... upon the water to protect himsel... rises by his enemies. Mr. John ... in his book, speaks of the boat d... nton: "In each boat you see a ... g overhead—bamboo matting—... dle at one end, and the kitche... tiny stove or brazier at the other. ... et is crowded with children. The C... raises his pigeons, hens and even ... is boat. You see the coops setting ... mple decks. You hear the chanti... amid stream."

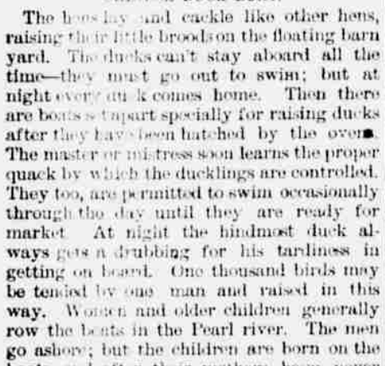


CHINESE DUCK BOAT.

The hens lay and cackle like other hens, raising their little broods on the floating barn yard. The ducks can't stay aboard all the time—they must go out to swim; but at night every duck comes home. Then there are boats set apart specially for raising ducks after they have been hatched by the oven. The master or mistress soon learns the proper quack by which the ducklings are controlled. They too, are permitted to swim occasionally through the day until they are ready for market. At night the hindmost duck always gets a drubbing for his tardiness in getting on board. One thousand birds may be tended by one man and raised in this way. Women and older children generally row the boats in the Pearl river. The men go ashore; but the children are born on the boats, and often their mothers have never been on land. Land is dear and life is cheap. Those unable to rent a garden sometimes construct little floating islands or rafts made of bamboo, and cover them with soil, upon which they grow their vegetables. If a boat gets upset, the first impulse is to save its contents and then the occupants afterward.

Photographed By the Lightning.

Not long since Miss Lilian Paul, of Plainfield, N. J., sat up at night to wait the return of a member of the family who was out. A tremendous thunder storm came. Lightning played, and ever and anon lit the house with blinding flashes that would have frightened an ordinary woman out of her senses. But Miss Lilian is one girl who is not scarey, thank heaven! She sat coolly enough, reading.



THE LIGHTNING PHOTOGRAPH.

A tin tray, heavily plated with brass, stood upon a little stand in a bay window. The brazen surface was brilliantly polished, and had been hammered to resemble alligator hide. The lightning lit this tray in flashes of rather alarming brilliancy. Miss Lilian thought she would remove it to a darker part of the room. As she was about to do so an overwhelming sheet of light came that blinded and startled her. The tray gleamed as if it had been ablaze. She seized it in a hurry, threw a cover over it and put it under the table. Then she left the room.

Next morning a perfect picture of the young lady was found to be photographed upon the tray. It was produced by the brass surface of the tray beneath it having been dulled and darkened to a deep buff color. It was a profile picture, and where her eye was the brass was left bright and shining, the surface being here untouched, as is indicated in the illustration.

Miss Paul has short, black, curly hair. Where it appears to be in a knot behind a lock must have been brushed up from leaning against a chair.

Such is the lightning photograph. How it was made, who shall say? Nobody is wise enough to explain it as yet. A reflection of the girl's face may have been thrown upon the polished tray by light streaming from it to the tray. Chemical rays in the lightning's flash may have caught the reflection, acted on it in an instant and fixed it. But how about the bright spot that was left where her eye was?

Different and stronger rays may have streamed from her eye, rays so strong that the electrical chemistry could not decompose them. How the picture came to be caught in profile is also a mystery. She may have been holding the tray at the moment so that a reflection of her side face fell upon it when the picture was made. But still it is all not very clear. We only know it is very remarkable.

Shall Man Soar Like the Birds?

Professor Isaac Lancaster has presented to the American Association for the Advancement of Science an account of a discovery about flying that he has made. The learned gentlemen of that body consider it a wonderful achievement, so there must be something in it. They have offered a prize of $50 for the best paper on the subject next year.

Professor Lancaster has devoted his attention to the floating or soaring of birds. He observed that a large bird will move forward and remain a-wing hours and hours without a single flap or motion. He thought if he could get the secret of it then any substance shaped like a bird's wing, and no heavier proportionately than that, could do the same. He studied birds carefully for months, covering himself with green and brown cotton cloth to disguise himself as a pine tree. The artificial soaring wing he found must have the under surface rough to motion from rear to front, and smooth from front to rear. It must have the front edge on the under side. It must have the elastic feather tips and be longer than it is wide, and if it closely imitates the birds it must have from one to three pounds weight for each square foot of surface. He constructed floating planes which, for lack of a better name, he has termed effigies. They would draw into the breeze from the hand and simulate the soaring birds perfectly, moving on horizontal lines, or on any inclination to a vertical.

Motionless wing flight! That was the solution of the problem. His most successful "effigy" was a machine with a balance arm rotating in a horizontal plane, like a children's merry-go-round or Flying Dutchman. This remained floating in calm air for three days, but a wind stopped it, unlike the birds, which soar against the wind. The arms of this machine were very long, ninety-four feet across, extending out each side from a horizontal broad plane 24 by 12 feet. The long, rotating arms were to imitate the wide circles, 180 feet across, in which the birds move around. He says the frigate birds can be seen any calm day over the lower Florida coasts going around and around in their interminable circles on fixed wings the whole day long. Then a plane of the weight and dimensions and position of a frigate bird ought to move in the same manner if similarly placed.

Thus far has the invention proceeded. Can a machine be made which will also soar in a wind? The question is open.

How Iron Wears Out.

When a worn car wheel tread is examined under the microscope it is perceived that the surface of the metal comes off in thin flakes or scales. Examined under high powers the scales are found to resemble portions of a brick wall, the fractures being not in the particles of iron, but in the material which unites the particles in a manner similar to which mortar unites the bricks of a wall. Continuous jarring breaks this cement or uniting material, thus allowing iron so treated to fall in pieces.

Moon and Magnet.

An Austrian savant has ascertained that the moon has an influence on a magnetized needle varying with its phases and its declination. The phenomenon is said to be more prominently noticeable when our satellite is near the earth, and to be very marked when she is passing from the full to her first or second quarter. The disturbances are at their maximum when the moon is in the plane of the equator, and greater during the southern than the northern declination.

Facts of Interest.

Midway island, one of the Hawaiian group, belongs to the United states, and is used as a coal station.

It is said that within a radius of 100 miles around Asheville, N. C., every known mineral can be found.

Dr. E. Parmly Brown declares that the excessive use of salt is one of the main factors in the destruction of human teeth.

Divers in thirty feet of water, at Holyoke dam, near Hartford, have kept up communication with the men at the pipes by means of telephones.

Prof. Pickering, of the Boston Institute of Technology, with several skilled photographers, went to Grenada, one of the West India islands, to observe the sun eclipse of Aug. 29.

A good Cremona violin has fifty-eight divisions. The back, neck, sides and circles are of sycamore; the belly, bass bar, sounding post and six blocks of deal; the finger board and tail piece of ebony.

A New Zealand mushroom, which grows on the trunks of trees, is likely to become an article of exportation to England. It is exported in large quantities to China, where it is used in the preparation of soups.

A Frenchman with prophetic tendencies declares that the great iron tower 1,000 feet high, proposed to be built in Paris, will become magnetic on account of the huge blocks of iron running north and south. In this case all iron things for a mile around will be drawn to it.

WHAT SHALL WE WEAR?

Combing Sacque.

The illustration shows a very convenient loose jacket for a lady to wear while combing her hair, before putting on her corset and dress in the morning.

COMBING SACQUE.

This combing sack of white batiste, with ruffles of batiste embroidery headed by an insertion of torchon lace. The ruffle around the bottom is four inches wide, while that along the right front is two inches wide, and is set on at an inch and a half from the edge, so that it covers the buttonholes and buttons. The pocket flaps are trimmed with embroidery and set on the sides, and a ribbon bow is placed at the throat and on the sleeves.

Some Morning Sacques.

Fig. 1 shows a graceful morning jacket. These little morning sacques are now much

FIG. 1.

worn. They are often made of wool or satteen and worn over a different skirt, or a skirt of the same can be made. The skirt in this case is usually without draping, either kilt plaited, plain or with a broad flounce at the bottom.

The model illustrated is of figured pink wool, lined with surah of the same tint. The body is close-fitting, and has added to it a short distance below the waist a box-plaited flounce of the same goods, edged with white wool lace seven inches deep. A jabot of the same lace is along the front, and deep frills are on the sleeves, which are gathered on the shoulder and at the wrist. A passementerie trimming of knotted pink silk cord finishes the edges and seams and hangs in loops on the front.

The breakfast jacket can be made of serge or of twilled flannel, white or pale pink or blue; it is trimmed with white wool lace and colored ribbon bows. Face the fronts an inch and a half and the bottom an inch deep;

FIG. 2.

bind the neck with the collar. Set on the pockets and pocket flaps, as shown in the illustration; trim the neck, front and sleeves with lace, and place a ribbon bow at the throat.

New Street Dress.

Ladies who keep up with the prevailing styles have already learned that the underskirt of the coming costume need not in any way resemble the rest of the suit, and that so long as it is striped or of fancy colors it is quite the approved fashion. To select, therefore, from short lengths such pieces as will make the lower part and side panel of a walking skirt is the objective idea of many shopping excursions. Judiciously used, five and one-half or six yards of these elegant materials will make the required underskirt, and be sufficient for any combination in the basque, if it is desired.

In heavy fancy goods there should be no foot plaiting or fullness of any sort for the bottom of the skirt. The breadths should be plainly seamed up and finished out at the top by the skirt lining, as the thick goods does not extend to the belt on account of its weight and for economical reasons as well. The drapery should be carefully planned so as to leave one long breadth on one side over which the front and back draperies must part to show the panel from the foot nearly to the belt or to the edge of the basque. Very rich silks with fancy stripes, striped plushes, velvet and moire will be made up for these skirts. A few very heavy high cost brocades are to be similarly employed. The overdress should be of wool, with long sweeping draperies, plainly hemmed, or in some goods showing the selvedge at the edge of the drapery. The basque must be short and with the severely simple effect of a riding habit. This is to be the characteristic walking dress of the coming season.—Demorest's Monthly.

The Fly Pin.

A decided novelty is the "fly pin." In reality this is not a pin, but an ornament to take the place of brooches and other pins, especially in delicate laces and thin fabrics. It embraces in its designs a large number of winged insects and represents a sufficient number of sizes to furnish ornaments for many purposes. In a word, it appears as a blue bottle fly on a bonnet ribbon, as a humming bird for a brooch, a gorgeous butterfly for a hair pin, or a dragon fly for a bouquet holder, and so on through the family of winged insects. Some of these pins are of plain gold, others are set with gems, while others are enameled in faithful copy of nature's hues. The novelty consists in the manner in which these pretty little ornaments are fastened on to the ribbon, the dress or in the hair. In the body of each fly is concealed an ingenious contrivance whereby the wings are movable. On being pressed together backwards, two little gold prongs underneath the wings open and, being laid against the lace or fabric, gains a firm clasp on the same, when the pressure is removed and the wings are permitted to spread themselves. The advantages, especially for delicate fabrics, are obvious, the frailest web of lace cannot be torn, and as the ornaments are of light weight there is no pulling or sagging when fastened to thin materials. It is believed that fly pins will prove especially attractive on ball and evening costumes, for hair ornaments, and fastening up lace draperies and holding on corsage bouquets.—Jewelers' Circular.

The Bodice, or Corselet.

The fashion of bodices or corselets is on the increase. They are made chiefly of velvet of a color to correspond with that of the dress. Even women no longer young now wear corselets, which are completed at the top and transformed into a high corsage by two fronts of the dress material a trifle shirred. Suppose a toilet of pale gray silk worn by a lady of a certain age. The corselet will be of deep gray velvet embroidered in gold, and the fronts, which simulate a draped fichu, will be of pale gray silk like the rest of the dress, the sleeves being like the fronts. In short, the bodice or corselet is given the aspect of an actual corset put on over the corsage of a dress.

FASHIONLETS.

The marquise is the newest lace.

Flat finger rings are out of fashion.

A glove must be long or it is nothing.

Skirts are gathered, draped or plaited.

The beryl and the opal are fashionable stones.

Black and white silk hose in pin checks are imported.

Etamine with wide meshes is combined with woolen lace.

Velvet jackets, sleeveless of course, are worn with lace dresses.

Times are good again. The jewelry trade has improved 25 per cent. over last year.

White silk vests, braided with gold of a pale tint, are worn with tailor-made dresses.

Women will wear large and splendid ornaments in jewelry, men very small and quiet ones.

It is considered more stylish in France for a bride to wear a long plain tulle veil than a lace one.

Very large ball earrings of dull gold, sometimes with a jewel set down deep in them, are coming into fashion.

Shoes are less pointed, and have renounced the high heels which gave such an unsteady gait and projected the body forward.

Plush jackets are made without any extra trimming of fur or passementerie, and are beautiful from their very simplicity.

YOUNG FOLKS' COLUMN.

SOME MATTERS OF INTEREST TO BOYS AND GIRLS.

A Young Naturalist's First Day Afield. Harmless Tricks—The Boy or Girl Who Will Rise—A Great City Full of Little People.

"Stop, Hallie! See what you are doing!"

"He's kicking up a dreadful dust," said Elmore.

"He's destroying a a whole city with all its wealth, and may be killing whole families, babies and all."

Both boys looked at Uncle Frank in a horrified way, and then looked quietly and curiously at the ground.

"It's only an old ant hill, uncle."

"Only an ant hill. And what is that but a city of many thousand people, a few hundred times smaller than you, 'tis true, but alive and capable of feeling and planning and working."

"I believe you about the numbers—just see them swarm! But weren't you joking about the 'wealth' of the city? I don't see any banks and stores."

"There were banks and stores, nevertheless, and all this year's crops and goods in them."

The boys looked, rather than asked: "What kind of goods, pray, are in an ant hill?"

"There was stored in that city what was worth as much to its owners as your own father's stock of groceries and bank account to him—wheat seed, crumbs of bread, grain and sugar, shreds of meat, dead bugs, etc., enough to last all winter. Suppose you take all the provisions out of Chicago!"

"Well," said repentant Hal, "I'll bring my pockets full of wheat and things, and that will pay them all 'sack.'"

"All, perhaps, but the trouble of assorting and storing them."

"Storing? Storing? Do they go to that trouble?"

"Does your papa in his store mix flour and hams and coffee and molasses together? Fancy these ants mixing crumbs of bread, grain, dead flies, bits of sugar or apple and dried insects all together! They have a place for everything, and put everything in its place."

"But what about the babies?"

"Don't you see those white things they are carrying away?"

"They are grains of rice, I suppose."

"They are nothing of the kind, but baby ants being carried to a place of safety."

"I'd awfully hate to be one of their babies and get nothing for breakfast but dried bugs and rag weed seeds."

"Mistaken again. Their babies are fed the sweetest and richest of milk."

"Can these fellows carry away milk, too, or have they milkmen as well as banks and stores?"

"Better than that; they keep their own cows—the aphis, a kind of plant louse, which exudes drops of honey-like fluid just adapted to baby ants. They watch these creatures—sometimes shut them up to keep them from running off—and milk them by pressing the body with their forefeet."

"I'll watch what I kick after this."—Morning Guide.

A Young Naturalist.

HIS FIRST DAY AFIELD.

"Oh, good Mr. Darning-needle, please don't sew up my ears. I'll never catch another insect in my life if you'll only let me off just this once."—Harper's Young People.

Harmless Tricks.

While we cannot recommend the following "tricks" as either new or brilliant, we print them because now and then a "catch" of this kind causes some little merriment on the part of the young people at father, mother or uncle's expense:

Can you place a newspaper on the floor in such a way that two persons can stand upon it, and not be able to reach one another with their hands? Answer: Yes; by putting the paper in a doorway, one half inside and the other half outside of the room, closing the door over it; two persons can easily stand upon it, and still be beyond each other's reach.

Can you put one of your hands where the other cannot touch it? Easily; by putting one hand on the elbow of the other arm.

Can you place a pencil on the floor in such a way that no one can jump over it? Yes; if I place it close enough to the wall of the room.

Can you push a chair through a finger ring? Yes; by putting a ring on the finger and pushing the chair with the finger.

You can put yourself through a keyhole by taking a piece of paper with the word "yourself" written upon it and pushing it through the hole.

You can ask a question that no one can answer with a "no" by saying, "What does yes spell?"

You can go out of the room with two legs and return with six by bringing a chair along with you.

Boy and Puppy.

A QUEER SAND ANIMAL.

—Harper's Young People.

The Boy or Girl Who Will Rise.

Show me a boy or girl who is self-respecting, scorns a lie and deception, is honorable among his playmates and pure in habits, and I will show you one who will have mental culture, no matter what his surroundings may be. He will manage by some fair means to acquire enough of the lore of books to enable him to carry out his chosen life work with dignity and credit.

CEYLON'S ISLAND.

THE LAWS, CUSTOMS AND INDUSTRIES OF THE INHABITANTS.

Native Products of the Soil—Ceylon Cinnamon—Cocoa Palm Trees—Coffee Plantations Ruined by the "Vast-of-Tricks." The Tea Industry.

Ceylon now pays its own military expenses, the force being only one regiment of British infantry, one of native and one brigade of artillery. The island government grants aid to schools having a required number of pupils. The Dutch requirement of a Protestant profession was at once abolished. Hospitals and dispensaries abound. A British governor founded our medical college, which is liberally endowed by two wealthy Singhalese. The Singhalese, the native Ceylonians, have an aptitude for the medical vocation, and have a large practice in government employ and among resident British.

The proportion of children is one in twenty-eight. In India it is one in 100. The Singhalese are prone to litigate. They go to law about owning the sixth part of a cocoanut tree. A Singhalese is judge of the supreme court. Others are leading lawyers. The abolition of slavery was finished about forty years ago. Less than thirty years ago polyandry (many husbands) was legal.

The people have both Singhalese and Tamil newspapers. Those two are the most numerous of the several eastern races here.

British law conserves the forests, and prevents the extinction of wild elephants, elk, etc. The townspeople have modern advantages.

Government, from time to time, according to the will of the different governors, clears away overgrowth and excavates out of debris and earth the still remaining architecture of a civilization which ranks among the most interesting of ancient ruins, and will henceforth much increase the attractions of Ceylon.

CEYLON'S NATIVE PRODUCTS.

The native people could raise plantation and garden products—pepper, cinnamon, nutmeg, chocolate, cardamoms and fruit—sell them dear, and buy rice cheap from India and Burmah. Rice is their staple grain food. But they take to their inherited rice culture more than to any other agriculture. Rice requires a flooded ground. Falling in with their preference, the British have largely restored ancient irrigation works, thus doing more for the Singhalese than for centuries had been done by either European or native rulers. The average native was a more sparing eater seventy years ago than he is to-day, and he is apparently a very moderate eater now. He was always inclined to vegetarianism through his devotion to Buddha. The exported cinnamon has greatly increased under British rule. Cinnamon is native to Ceylon, as tea is in some parts of Assam and Burmah. Ceylon cinnamon is the finest in the world.

More attention is now given to the various palms. Many forehanded Singhalese and Tamils, whose thrift also is within the last fifty years, now plant gardens of palms and other profitable trees as an investment. It is estimated that in Ceylon there are 26,000,000 cocoa palm trees, covering over 300,000 acres, almost all owned by Singhalese and Tamils. The annual exports of essential oils made from lemon grass, citronella grass, cinnamon leaves and cinnamon value nearly $300,000. The Singhalese raise their own tobacco, and export a little to India. They sometimes mix it with their "betel," a combination with lime, which is generally used by the people of this region, who live mostly on rice and the like. It is said by physiologists to furnish an element in which their food is deficient.

Every Singhalese garden grows a little sugar cane, mainly to be chewed like candy. There is only one large manufacturing sugar estate in Ceylon. The culture has been tried, and in most situations the cane runs in stalk, and the moist climate and soil do not allow the sap to crystalize, nor does the stalk yield enough crystalizable material.

THE "VAST-OF-TRICKS."

The Arabs introduced the coffee plant very anciently; yet its beverage was unknown when the European arrived. The Singhalese used the coffee leaves in their spicy curries, and they ornamented the shrines of the adored Buddha with the delicate white and jasmine like coffee flowers. But the British made great plantations, each estate employing scores and hundreds of laborers, mostly Tamils from South Hindustan. The Tamils are more energetic to get the opportunity of hard work than the Singhalese. The British planter soon introduced the West Indian system of cultivation; coffee became the backbone of our treasury and the manufacturer of individual fortunes. Then the Singhalese caught the coffee zeal, and a quarter to one half of the export was native coffee.

Meantime a small, bright orange spot appeared on the coffee leaves, yet slightly affecting the plant. Nobody cared for it except the director of the Ceylon Botanic gardens, and gold in the planters' pockets jingled louder than the plant doctor's word of alarm. But that little blight, the "Vast-of-Tricks," as was Anglicized the Hemmaleia Vastatrix, brought the proprietors home from their haunts, mortgaged their estates, cheapened their lands, and now a new generation of men are as energetically and enthusiastically planting tea with an anticipation of more than the prosperity of coffee times, if the world will continue to be thirsty, and will continue to quench that thirst over "the cup that cheers but not inebriates." Everything is booming. Ceylon at present is a favorite place for British capitalists to start their sons in a really wide and interesting career of industry, the direction of great plantations employing one and a half to two laborers to every acre.—Anna Ballard in Cincinnati Commercial Gazette.

Starvation in London.

"Thirty-seven is the number of deaths reported in London for the year 1885 due to 'starvation or privation,'" says The St. James Gazette. "It is lamentable; and yet the wonder, perhaps, is that in such a city in such times the return is so small. The victims were of all ages and trades, and included bookkeepers, fish hawkers, chimney sweeps, infants and a parish beadle. It is to be feared that the return is incomplete. Doubtless 'starvation or privation' caused all these thirty-seven deaths; but as certain is it that they were responsible for a great many more. It is difficult to say when a death in the cellars of the East End is not due more or less to starvation. Privation is even a wider term."—Exchange.

Don't Fret Yourself.

Don't fret yourself to death. If things happen, it is not your fault, or, if it is, you can't help it as long as they have happened. There's a law here in Massachusetts against adulterating milk. It's a bad plan to spill it and then to water it with tears.—Somerville Journal.

It Costs to Die in Switzerland.

There is another feature to the Swiss hotel which is altogether peculiar to itself. If you are so imprudent as to die in one of them, the corpse is charged 250 francs, or $50. This is called "the inhumanity fee."—Henry Watterson, in Courier-Journal.